In the Claims

Please amend the claims as follows:

1. (Amended) In [the] transalkylation of polyalkylated aromatic compounds, [the] a process comprising:

(a) providing a transalkylation reaction zone containing a transalkylation catalyst comprising a high porosity zeolite-Y molecular sieve having a silica/alumina ratio within the range of 2-5, a pore size greater than 7 and up to about 8 Angstroms, and a surface area of no more than 500 m^2/g;

(b) supplying a polyalkylated aromatic component comprising polyalkyl benzenes in which the predominant alkyl substituents contain from 2 to 4 carbon atoms to said transalkylation reaction zone;

(c) supplying benzene to said transalkylation reaction zone;

(d) operating said transalkylation reaction zone under temperature and pressure conditions to maintain said polyalkylated aromatic component in [the] a liquid phase and effective to cause disproportionation of said polyalkylated aromatic component to arrive at a disproportionation product having a reduced polyalkyl benzene content and an enhanced mono-alkyl benzene content; and

(e) recovering said disproportionation product from said transalkylation zone;

6. (Amended) The method of claim 5 wherein at least a portion of the polyethylbenzene is recovered from a [previous] transalkylation reaction.

7. (Amended) The method of claim 1 further comprising:

(a) supplying a feedstock containing benzene and a C_2-C_4 alkylating agent to an alkylation reaction zone containing a molecular sieve aromatic alkylation catalyst having an average pore size which is less than the average pore size of said high porosity zeolite-Y;

(b) operating said alkylation reaction zone to produce an alkylated product comprising a mixture of mono-alkylated and poly-alkylated aromatic components, and benzene by said alkylating agent in the presence of said molecular sieve alkylation [poly-alkylated aromatic components]; and

A2

(c) supplying the alkylation product from said alkylation reaction zone to an intermediate recovery zone for the separation and recovery of mono-alkylbenzene from the alkylation product and for the separation and recovery of a polyalkylated aromatic component, including dialkylbenzene, and employing said polyalkylated aromatic component as at least a portion of the polyalkylated aromatic component supplied in subparagraph (b) of claim 1.

10. (Amended) In [the] alkylation and transalkylation process of aromatic compounds, [the] a process comprising:

(a) supplying a feedstock containing benzene into a multistage alkylation reaction zone having a plurality of series connected catalyst beds each containing a molecular sieve aromatic alkylation catalyst having a pore size which is smaller than the average pore size of the hereinafter-recited zeolite-Y;

(b) supplying a C_2-C_4 alkylating agent to said reaction zone;

(c) operating said reaction zone at temperature and pressure conditions to maintain said feedstock in the gaseous phase and causing gas-phase alkylation of said benzene by said alkylating agent in the presence of said catalyst to produce an alkylated product comprising a mixture of monoalkylated and polyalkylated aromatic components;

(d) recovering said alkylated product from said reaction zone and supplying said product from said reaction zone to a benzene recovery zone for the separation of benzene substrate from said alkylated product;

A3

(e) operating said benzene recovery zone to produce a lower boiling benzene containing fraction and a higher boiling fraction comprising a mixture of monoalkylated aromatic and polyalkylated aromatic component,

(f) recycling benzene from said benzene recovery zone to said reaction zone;

(g) supplying said higher boiling fraction from said benzene recovery zone to a secondary separation zone;

(h) operating said secondary separation zone to produce a secondary lower boiling fraction comprising a monoalkylated aromatic component and a higher boiling fraction comprising a heavier polyalkylated aromatic component;

(i) supplying at least a portion of said polyalkylated aromatic component including the dialkylated and trialkylated aromatics in said polyalkylated component to a transalkylation reaction zone containing a high porosity zeolite-Y molecular sieve having a silica/alumina ratio within the range of 2-5, a pore size greater than 7 and up to about 8 Angstroms, and a surface area of no more than 500 m^2/g;

(j) supplying benzene to said transalkylation zone;

(k) operating said transalkylation reaction zone under temperature and pressure conditions to maintain said benzene in the liquid phase and effective to cause disproportionation of said polyalkylated aromatic fraction to arrive at a disproportionation product having a reduced polyalkyl benzene content and an enhanced monoalkyl benzene content;

(l) supplying at least a portion of said disproportionation product to said benzene recovery zone.

15. (Amended) The method of claim [14] 21, wherein at least some of said heavier polyalkylated aromatic component from said secondary separation zone is, prior to the operation of paragraph (i), applied to a tertiary separation zone wherein said heavier polyalkylated aromatic component is separated into a tertiary lower boiling fraction of said polyalkylated aromatic component comprising dialkyl and trialkyl aromatics and a heavier higher boiling residue fraction and wherein said tertiary lower boiling fraction of said polyalkylated aromatic component is supplied to said transalkylation reaction zone in accordance with paragraph (i).

18. (Amended) In [the] alkylation and transalkylation of aromatic compounds, [the] a process comprising:

(a) supplying a feedstock containing benzene into a multistage alkylation reaction zone comprising having a plurality of series connected catalyst beds each containing a pentasil molecular sieve aromatic alkylation catalyst;

(b) supplying a C_2-C_4 alkylating agent to said reaction zone;

(c) operating said reaction zone at temperature and pressure conditions to maintain said feedstock in the gaseous phase and causing gas-phase alkylation of said benzene by said alkylating agent in the presence of said catalyst to produce an alkylated product comprising a mixture of monoalkylated and polyalkylated aromatic components;

(d) recovering said alkylated product from said reaction zone and supplying said product from said reaction zone to a benzene recovery zone for the separation of benzene substrate from said alkylated product;

(e) operating said benzene recovery zone to produce a lower boiling benzene containing fraction and a higher boiling fraction comprising a mixture of monoalkylated aromatic and polyalkylated aromatic component;

(f) recycling benzene from said benzene recovery zone to said reaction zone;

(g) supplying said higher boiling fraction from said benzene recovery zone to a secondary separation zone;

(h) operating said secondary separation zone to produce a second lower boiling fraction comprising a monoalkylated aromatic component and a higher boiling fraction comprising a heavier polyalkylated aromatic component;

(i) supplying a first portion of said polyalkylated aromatic component including dialkylated and trialkylated aromatics in said polyalkylated product to a transalkylation reaction zone containing a zeolite transalkylation catalyst comprising a high porosity zeolite-Y molecular sieve having a silica/alumina ratio within the range of 2-5, a surface area of no more than 500 m^2/g, a pore size greater than 7 and up to 8 and greater than the pore size of said pentasil catalyst;

(j) supplying a second portion of said polyalkylated aromatic component from said secondary separation zone to a tertiary separation zone which is operated to separate said heavier polyalkylated aromatic component into a lower boiling fraction of said polyalkylated aromatic component comprising dialkyl and trialkylated aromatics and a higher boiling fraction comprising a residue fraction;

A5

(k) supplying said lower boiling fraction of said polyalkylated aromatic component from said tertiary separation zone to said transalkylation reaction zone in addition to said first portion from said secondary separation zone;

(l) supplying benzene to said transalkylation zone;

(m) operating said transalkylation reaction zone under temperature and pressure conditions to maintain said feedstock in the liquid phase and effective to cause disproportionation of said polyalkylated aromatic fraction to arrive at a disproportionation product having a reduced polyalkyl benzene content and an enhanced monoalkyl benzene content; and

(n) supplying at least a portion of said disproportionation product to said benzene recovery zone.

Please cancel claim 14 and rewrite in independent form as claim 21.

21. In alkylation and transalkylation of aromatic compounds, a process comprising:

(a) supplying a feedstock containing benzene into a multistage alkylation reaction zone having a plurality of series connected catalyst beds each containing a molecular sieve aromatic alkylation catalyst having a pore size which is smaller than the average pore size of the hereinafter-recited zeolite-Y wherein said alkylation catalyst comprises predominately monoclinic silicalite having a crystal size of 0.5μ or less and formulated with an alumina binder to provide catalyst particles having a surface area/volume ratio of at least 60 $in.^{-1}$;

(b) supplying ethylene to said reaction zone;

(c) operating said reaction zone at temperature and pressure conditions to maintain said feedstock in the gaseous phase and causing gas-phase alkylation of said benzene by said ethylene in the presence of said catalyst to produce an alkylated product comprising a mixture of monoalkylated and polyalkylated aromatic components;

(d) recovering said alkylated product from said reaction zone and supplying said product from said reaction zone to a benzene recovery zone for the separation of benzene substrate from said alkylated product;

(e) operating said benzene recovery zone to produce a lower boiling benzene containing fraction and a higher boiling fraction comprising a mixture of monoalkylated aromatic and polyalkylated aromatic component;

(f) recycling benzene from said benzene recovery zone to said reaction zone;

(g) supplying said higher boiling fraction from said benzene recovery zone to a secondary separation zone;

(h) operating said secondary separation zone to produce a secondary lower boiling fraction comprising a monoalkylated aromatic component and a higher boiling fraction comprising a heavier polyalkylated aromatic component;

(i) supplying at least a portion of said polyalkylated aromatic component including the dialkylated and trialkylated aromatics in said polyalkylated component to a transalkylation reaction zone containing a high porosity zeolite-Y molecular sieve having a surface area of no more than 500 m^2/g;

(j) supplying benzene to said transalkylation zone;

(k) operating said transalkylation reaction zone under temperature and pressure conditions to maintain said benzene in the liquid phase and effective to cause disproportionation of said polyalkylated aromatic fraction to arrive at a disproportionation product having a reduced polyalkyl benzene content and an enhanced monoalkyl benzene content;

(l) supplying at least a portion of said disproportionation product to said benzene recovery zone.